

XXIII. *Illustrations of the Relationships existing amongst Natural Objects, usually termed Affinity and Analogy, selected from the Class of Insects.*  
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IN the fourteenth volume of the Transactions of the Linnean Society is contained an interesting paper by the Rev. W. Kirby, with the title, “A Description of some Insects, which appear to exemplify Mr. William S. MacLeay’s Doctrine of Affinity and Analogy,” wherein the reverend author points out the confusion which has occasionally arisen in attempts made to distribute the objects of nature according to their natural relations, in consequence of the authors of such attempts having no clear perception of the distinctions which exist between the two kinds of relations above mentioned, and therefore confounding them together, or even occasionally giving the higher rank to relations of analogy instead of affinity.

The object of the following remarks is still further to illustrate the theory in question, and to show that from the entirely relative and comparative nature of these relations, founded as they both are upon more or less perfect resemblance, two animals may at the same time be allied together both by affinity and analogy; in other words, two animals may possess totally independent relations both of affinity and analogy: thus, whilst the goatsucker and the swallow are related to each other by analogy when we look to the class of birds alone, we find them related together by affinity when the comparison is made between them both as *birds* with the bat amongst *Mammalia*. In like manner, whilst the bat and the swallow are thus related together by analogy as members of the classes *Aves* and *Mammalia*, they must be considered to be related together by affinity as *vertebrated animals* when we compare them with the dragonfly amongst the *Invertebrata*.

The truly comparative nature of these relations has not been hitherto stated, and hence, as it appears to me, has originated much of the misconception which still exists even among professed naturalists, many of whom are ready to admit the existence of relations amongst natural objects founded upon more or less complete *resemblances*, but yet of equivalent value, without perceiving the various natures, and consequently varied value, of such relations\*.

In the following pages I have first selected such species of insects as exhibit an analogy with other species of the same order; and secondly, such as illustrate the analogies between insects of different orders.

That species belonging to two genera of the same family, or even subfamily, may be analogous representatives of each other, is as clear as though they belonged to different families or orders. Thus, although the genus *Adelium*, K. is so excellent an example of analogy, when its species are compared with the species composing the family *Carabidae*, that the specific names *Caraboides*, *Calosomoides*, *Licinoides*, have been given to insects belonging to the former genus, yet there may be relations of analogy existing among the species of

\* One of the chief difficulties connected with this subject is that of drawing the precise line between these two kinds of relations (hence the difficulties connected with the true location of *Mantispa*); this is not a little increased by the evident distinctions existing amongst each class of relations: thus affinities may be so concealed as to escape the eye even of professed naturalists; hence the Homopterous genus *Aleyrodes* so completely puts on the appearance of a moth, that Linnæus named it *Phalæna Tinea proleptella*; whilst Fabricius in all his works described an Orthopterous insect (*Hymenotes rhombea*, Westw. Proc. Zool. Soc., 1837, p. 130.) under the Homopterous genus *Membracis*; the precise relations of these insects being *disguised affinities*. The relation between the house- and field-cricket is an *evident* affinity, but that which exists between the field-cricket and the mole-cricket is a *disguised* affinity, and yet no one will question the propriety of these insects being considered as closely allied together, although so totally different in form. Again, analogies may be equally *disguised*. No one, for example, has ever supposed that one of the *Carabidae* and *Paussus* possessed any relation; and yet not only do *Ozæna* and *Paussus* crepitate, but both also possess a minute tubercle at the posterior external angle of the elytra, which no other Coleopterous insects exhibit. In like manner, no one would suppose that any relation could exist between a butterfly and a woodlouse (beyond that of each being a Condylopodous animal), and yet by comparing the imperfect state of *Thecla* with the perfect state of *Oniscus* we find them to possess a *disguised analogical relation*. I mention these as instances of the many trivial circumstances which may be collected as grounds for asserting the existence of analogical relations, which are necessarily often of so diversified a character and so readily to be traced between almost any given groups, as to lead to a supposition that they can afford no decisive test of a natural arrangement independent of more important considerations.

the Carabideous genera thus analogically represented not less strong. The genus *Carabus*, for instance, comprises species (*Carabus gemmatus*, F.) which in their habit and the peculiar sculpture of their elytra analogically resemble *Calosoma Scrutator*, whilst *Carabus Fabricii*, &c., in the flattened form of the body represent *Licinus*.

In like manner, *Catascopus*, belonging to one of the subfamilies of *Carabidæ*, represents, as Mr. Kirby, in the memoir above referred to, notices, some of the insects composing another subfamily, *Bembidiidæ*; whilst *Musoreus* (a genus nearly allied to *Trechus*), in the posteriorly dilated thoracic lobe, represents *Lebia*, &c.

These Carabideous insects must however be regarded as related together by affinity (as forming part of the same family), when a relation of analogy is endeavoured to be traced between them and the species of other families, as, for instance, between *Carabus* and the Helopideous genus *Adelium*, noticed above.

In order to illustrate the relation of analogy exhibited by an insect belonging to one tribe but possessing the aspect of another, Mr. Kirby, in the memoir above referred to, described a genus under the name of *Pseudomorpha*, of which he says, "that even a practical entomologist, if he chanced to examine a specimen that had lost its antennæ, might at first regard it as a *Nitidula* or *Ips*, F., or as coming near that genus in the system; but when he came to study it in detail he would discover to his surprise all the essential diagnostics of one of Latreille's *Entomophagi*. The characters which give it an air and general appearance unlike those of its tribe are its sessile wide head received into the thorax, and its short antennæ and legs."

For the purpose of completing the illustrations of this curious genus given by Mr. Kirby in the plate accompanying his memoir, I have here added an outline figure of the insect now in the collection of the Entomological Society of London, the original being incorrect in the relative proportions of the legs, and no notice having been taken either in the description or figure of the erect rigid hairs with which the margins of the elytra are clothed. Mr. Kirby indeed describes the eyes as being "in medio pilosi;" but this is not correct, as it is only that part of the skull which borders the underside of the eyes which is furnished with rigid hairs, which extend beyond the middle of the

eyes. I have also given a careful representation of the maxilla and the anterior tibia, showing the peculiar construction of the subapical notch; and have added a figure of the underside of the head with the various organs *in situ*, from which it will be seen that there is a curved elevated line across the middle of the produced central part supporting the mentum, but I very much doubt whether there be any actual articulation at this place. On each side of this central part is a deep impression, having an elevated ridge running down the middle, forming two deep canals on each side, the interior of which serves for the action of the base of the maxilla, whilst the external forms a fossula for the concealment of the antenna when withdrawn beneath the head.

In the "Iconographie des Coléoptères" of Messrs. Dejean and Boisduval (vol. i. p. 176) a genus was proposed under the name of *Axinophorus*, consisting of two species, *A. Lacordairei* and *A. Lecontei*, the former inhabiting the vicinity of Rio Janeiro, and the latter North America. In the Supplement to the *Spécies Général*, Dejean having ascertained that this new genus was identical with *Pseudomorpha* as well as with the genus *Drepanus*, indicated only by Illiger in the sixth volume of the "Magazin der Entomologie" (p. 344), republished his descriptions of the *Axinophori* under the generic name of *Drepanus*, giving *A. Lecontei* as probably identical with *Pseudomorpha excrucians*, K. On comparing the figure given of *A. Lecontei* in the *Iconographie* with the authentic specimen of *Pseudomorpha excrucians*, now in the collection of the Entomological Society, it is unquestionable that they are specifically identical, so that the name *Lecontei* must sink into a synonym; and in like manner I feel disposed to preserve the generic name proposed by Mr. Kirby in preference to that merely indicated by Illiger.

In the first part of the Transactions of the Entomological Society, a still more remarkable insect was described by the Rev. F. W. Hope, under the name of *Adelotopus Gyrinoides*, being doubtfully placed in the family *Gyrinidae*, with the observation: "This singular insect was sent to me from the Swan River Settlement in New Holland. It seems to unite in itself the characters of several families. From the tarsi it is referrible to the *Pentamera*; whilst its general appearance and clavate antennæ place it amongst the *Necrophaga*. By its subcontractile legs (for the bent tibiæ are not en-



tirely concealed within the femora) it is allied to the *Byrrhidae*; but the leading character afforded by the maxillæ evinces a near affinity with the *Entomophaga*, amongst which the *Gyrinidae* must be considered the nearest in proximity, *Gyrinus bicolor*, Fab. somewhat approaching this insect in form."

Very ample details were figured of this most extraordinary insect, which certainly presents one of the most interesting instances of analogical relations which have hitherto been published. That such is the case, must be certainly admitted, when the preceding observations upon its relations are considered with reference to its actual affinity, since, notwithstanding its Gyrinoid habit, clavate antennæ, and subretractile legs, I have now ascertained that it unquestionably belongs to the *Carabidae*, and that it is very closely allied to *Pseudomorpha*, with which it agrees in the peculiar structure of the underside of the head, very short maxillary palpi, hatchet-shaped labial palpi, large femora, slender tibiæ, simple tarsi, &c.\*

I should probably have long remained in ignorance of this most unexpected affinity, had it not been for the examination of another curious beetle, also from New Holland, which I purchased from a dealer, and which, having its legs and antennæ retracted, I for a length of time regarded as a *Gyrinus*:

\* I am indebted to Mr. Edward Newman, F.L.S., for an opportunity of describing and figuring a new species of the genus *Adelotopus*, of which the following are the characters.

ADELOTOPUS IPSOIDES. W. TAB. XXVIII. fig. 2.

A. rufescenti-piceus; clytris paullò dilutionibus tenuissimè punctatis, genubus subtùs valdè dilatatis, humerisque clytrorum sublævibus.

Long. corp. lin.  $3\frac{1}{2}$ . Lat. lin.  $1\frac{1}{2}$ .

Habitat in Australasiâ. (Adelaide.) A. H. Davis.

Oblongus, convexus; capite tenuissimè punctato, transverso, genubus subtùs maximis, et (capite suprâ viso) valdè prominentibus: antennæ breves compressæ, in canali profundo ad basim receptæ. Palpi et antennæ breves, piceo-rufescentes; thorax lateribus subrotundatis, angulis posticis acutis; marginatus; lateribusque anticè paullò recurvis, margine antico punctis minutis valdè approximatis, posticè magis distantibus. Elytra tenuè marginata, (versus humeros sublævia,) tenuissimè et irregularitèr punctata. Pedes picei, femoribus maximis. Corpus subtùs pallidius, rufescenti- aut luteo-piceum, glabrum, nitidum.

I have never met with any Coleopterous insect which exhibited so great a development of the genæ on the underside of the head, here forming a large elevated plate on each side of the mouth between the trophi and the base of the antennæ.

wishing however to investigate my exotic *Gyrinidæ*, I found on examining the underside of the insect that it had slender legs and antennæ; I therefore, still supposing that my insect must be one of the *Hydradeephaga*, immediately regarded it as a species of *Colymbetes*; but a little further examination showed me that the legs were neither ciliated nor fitted for swimming. I therefore determined to investigate the structure of the mouth, when I discovered that I had obtained another Carabideous insect, also very closely allied to *Pseudomorpha*, which had not only deceived myself, but several excellent entomologists. The following are its characters.

SPHALLOMORPHA.

*Corpus* breve, latum, depressum, oblongo-subquadratum, thoracis clytrorumque lateribus continuis.

*Caput* transversum, depressum, thoraci ad oculos immersum. *Oculi* sat magni, laterales. *Labrum* transversum, breve, anticè ferè rectum, angulis anticis rotundatis. *Mandibulæ* forcipatæ, breves, subtrigonæ, intùs edentatæ, basi intùs in lobum magnum rotundatum producto. *Maxillæ* parvæ, lobo interno incurvo, intùs setis rigidis instructo, externo palpiformi bi-articulato, articulo 1mo brevi, 2do ante apicem paullò crassiori, apice ipso truncato. *Palpi maxillares* maxillâ breviores, incrassati, cylindrici, 4-articulati, articulo 1mo brevissimo, ut vix distinguendo, 2do magno subconico, reliquis duobus sensim tenuioribus, extimo præcedente paullò longiori, apice obliquè truncato. *Mentum* basi haud articulatum (lineâ indistinctâ locum articuli occupanti), breve, transversum, angulis lateribus anticè in lobos duos ferè parallelos productis, dente nullo medio. *Labium* ultra lobos menti haud extensum. *Palpi labiales* brevissimi, scapo basali inserti, 3-articulati, articulis duobus basalibus brevibus, ultimo longiori compresso, et apicem versus paullò crassiori (minimè securiformi), apice obliquè truncato. *Jugulum* elongatum, basi mento angustius, apice latiori, angulis anticis setâ instructis, fossulâ profundâ utrinque pro receptione maxillarum, alterâque inter hanc et oculum pro receptione antennarum. *Antennæ* capite ferè duplò longiores, gracillimæ, 11-articulatæ, articulo 1mo incrassato subarcuato, 2do cæteris breviori, reliquis æqualibus.

*Thorax* transversus, anticè angustior, posticè elytrorum baseos latitudine, sinu lato antico pro receptione capitis, margine postico ferè rectè truncato angulis anticis acutis, posticis subrotundatis; marginibus lateralibus rotundatis, tenuissimè marginatis: prosternum inter pedes anticos acutè protensum: metasternum breve. *Scutellum* parvum, subtriangulare. *Elytra* oblongo-subquadrata, depressa, posticè paullò angustiora, basi thoracis partis posticæ latitudine, et ad eum arctè applicatâ, tenuissimè marginata, apicibus obliquè subtruncatis, abdominis apicem haud tegentibus. *Pedes* breves, femoribus magnis, ovatis, compressis, subtùs (pro receptione tibiæ) carinatis, tibiis gracilibus, anticis intùs apicem versus emarginatis, tarsis subsetaceis, articulis simplicibus, anticis subtùs (in uno sexu saltem) serie duplici pulvillorum minutissimorum; unguibus duobus.

Spec. 1. SPHALLOMORPHA DECIPIENS.

Nigra, lævis, subnitida; ore, antennis pedibusque luteo-piceis, thoracis elytrorumque limbo tenui-luteo.

Long. corp. 4 lin.

*Habitat* in Novâ Hollandiâ.

In Mus. nostr.

Hoc genus a *Pseudomorpha* differt habitu latiori et magis depresso, et præsertim structurâ juguli, menti et palporum labialium, atque ab *Adelotopo* antennis filiformibus, mento et palpis.

I am further enabled by the kindness of the Rev. F. W. Hope to add to the interest of this communication by the introduction of a figure and description of another New Holland insect, which in some respects appears to be intermediate between *Pseudomorpha* and *Sphallomorpha*, and of which the following are the characters.

SILPHOMORPHA.

*Corpus* oblongo-ovatum, subdepressum; thoracis elytrorumque lateribus subcontinuis, subreflexo-marginatis.

*Caput*, *antennæ*, *mandibulæ*, *maxillæ*, et *palpi maxillares* fere ut in *Sphallomorpha*. *Labrum* latum, breve, margine antico in medio parùm emar-

ginato 4-setigero. *Mentum* maximum, cum jugulo adeò connexum, ut vestigium nullum articuli videas, angulis basalibus 4-setosis, lateribus dilatatis, angulis anticis in lobos duos magnos obtusos productis, denteque medio obtuso abbreviato. *Labium* ultra apicem loborum menti productum. *Palpi labiales* quàm in *Pseudomorpha* paullo longiores, triarticulati, articulis duobus terminalibus, subæqualibus, ultimo compresso apicem versus latiori, obliquè truncato, subsecuriformi. *Antennæ* gracillimæ, dum quiescentes in fossulâ ad latera menti receptæ. *Thorax* ferè ut in *Sphallomorpha*, lateribus magis rotundatis, et angulis posticis minùs acutis, subindè margo lateralis thoracis et elytrorum minùs continuus evadit. *Elytra* obovata, quadrata, depressa, ad apicem obliquè subtruncata. *Pedes* breves. Femoribus ovato-compressis, tibiis tarsisque gracillimis simplicibus, tibiis anticis ante apicem internè emarginatis.

#### SILPHOMORPHA FALLAX.

Obscurè piceo-nigra, haud nitida, sublentè punctatissima; elytris striis decem punctorum parvorum notatis, ore, antennis, pedibus corporeque piceis.

Long. corp. lin.  $7\frac{1}{2}$ .

*Habitat* in Novâ Hollandiâ.

In Mus. Dom. Hope, Melly, Newman.

The four preceding genera possess, as will be readily seen, so many characters in common, that they would doubtless be considered as belonging to the same genus, were they not carefully examined. All of them possess the same formation of the legs, (namely, large oval compressed femora, with very slender tibiæ and tarsi,) mandibles, maxillæ, minute maxillary palpi, truncate labial palpi, &c. But I think the differences pointed out above will be considered amply sufficient to warrant the establishment of distinct genera for their reception.

As to their immediate conjoint affinities amongst Carabideous insects, it is exceedingly difficult to decide. Mr. Kirby considered *Pseudomorpha* as doubtfully allied to *Omophron* (Latr., *Scolytus*, F.), its sessile head bringing it near to that genus and the aquatic *Entomophagi*. It is probably on account of this



supposition that he observes, “Habitat in Georgiæ forsan aquaticis?” He however noticed several circumstances which seemed to indicate an approximation towards *Lebia*, *Dromius*, *Tarus*, &c.; and Dejean, without being aware at the time of the observations of Mr. Kirby, placed it in the subfamily *Truncatipennes* (*Brachinidæ*, MacL.), with some of the genera of which group, such as *Coptodera*, *Orthogonius*, *Thyreopterus*, &c. these insects seem to me to be most nearly allied.

It is certainly a curious fact in the geographical distribution of Insects, that so aberrant a form as is indicated by the four insects noticed above should be found in regions so distant as North America, Brazil, and New South Wales. This fact alone I should imagine must be considered sufficient to prove that a wide geographical range is not the character of a typical group, as stated by Mr. Swainson.

The two insects represented in the accompanying figures 5 and 6, are *Rhyzopertha*, (Steph.) *pusilla* (Fabr.), and *Tomicus* (Latr.) *fuscus* (Marsh.), which in their xylophagous habits, cylindrical form, pitchy-ferruginous colour, punctated surface, transversely rugose thorax extending over the concealed head, dentate tibiæ, and short antennæ, are so very nearly alike, that by many authors they have been even placed in the same genus. A minute investigation of their structure proves them however to be totally different in their essential organs, the antennæ, trophi and tarsi. In these respects *Tomicus* will be found to belong to the group having the elm-destroying *Scolytus* as its type; whilst *Rhyzopertha* is most nearly allied to the genus *Bostrichus* of Geoffroy (*Dermestes capucinus*, Linn.). These two groups have indeed by many persons been considered to belong to the same family *Bostrichidæ*; and even by those who have ventured to place them in different groups, they have been made to follow each other without any intervening link; being indeed employed when thus connected to form the transition between the Pentamerous *Ptinidæ* and the Pseudotetramerous *Curculionidæ*, to which last *Scolytus* most intimately approaches.

That the relation between these two groups, notwithstanding the many points of connexion, in habit, economy, and even structure, is not an affinity, but merely an analogy, I entertain very little doubt, but our comparative ignorance of the structure and larvæ of the Xylophagous insects of Latreille

prevents a positive assertion upon this point\*. The variations, however, existing between these two groups in the important organs noticed above is so great, that, in comparison with the structure of other allied tribes, it must be admitted that we here find the real characteristics of an analogy, namely, external similarity of form, but a complete diversity of structure in the essential organs.

The examples hitherto produced have exhibited analogies existing between insects belonging to the same order. In this latter respect, however, (or, in other words, on account of their Coleopterous structure,) they are related together by affinity.

Of the still more widely extended relationship resulting from analogy, many examples might be given. Some have already been noticed in the introductory remarks upon the genus *Diopsis*, published in the last volume of the Transactions of this Society. Others may be mentioned wherein a great enlargement either of the scutellum or the posterior part of the prothorax is observed, which, contrary to the ordinary structure, is extended entirely over the body and wings. The genus *Scutellera* (so named from this circumstance) amongst the Heteropterous *Hemiptera*, many *Centroti*, &c. amongst the Homopterous *Hemiptera*, the species of *Acrydium* (*Tetrix*, Latr.) in the order *Orthoptera*, *Thoracantha*, Latr., in the *Hymenoptera*, and *Celyphus*, Dalm. in the *Diptera*,—respectively exhibit this singularity of formation.

The curious genus *Copium*, Thunberg (*Holhymenia*, Serv. and St. Farg.), is strikingly represented amongst Dipterous insects by the insect which I have figured in Griffiths's "Animal Kingdom" under the name of *Diateina Holhymenioides*, and in which the structure of the antennæ, and even the white colour of the terminal joints, are especially traceable in a most singular manner.

The Neuropterous genus *Ascalaphus* in like manner analogically represents the genus *Papilio* in another Order, *Lepidoptera*. But the most complete instance which I have hitherto met with, of deception produced by an insect of one order assuming the appearance of another, occurs in the species about

\* P.S. The recent discovery by Dr. Ratzeburg of the larva of *Bostrichus capucinus* fully confirms my supposition, it being hexapod, whilst that of the *Scolytidæ* is apod. Thus whilst the antennæ, trophi, tarsi and larvæ of *Rhyzopertha* and *Tomicus* are totally distinct, their general form and habits are similar, thus establishing their relation as one merely of analogy

to be described, and which for a great length of time I had arranged in my cabinet amongst the *Cicindelidæ*, regarding it as an immature *Colliuris* or *Tricondylu*, although it in reality belongs to the order *Orthoptera*.

Fam. GRYLLIDÆ. *Leach.*

(*Locustariæ*, Latr. *Locustina*, MacL. *Gryllus Tettigoniæ*, Linn.)

Genus. CONDYLODERA.

(*Obs.* Insecti, typum hujus generis constituentis, individuum unicum solùm vidi, cum alis et tegminibus brevissimis, abdominis basin tantùm tegentibus. An in statu pupæ sit, aut, ut potius mihi videtur, imaginis speciei alis incompletis gaudentis, ut in *Ephippigeris*?)

*Corpus* elongatum, thorace anticè attenuato, nodoso, oculis valdè prominentibus.

*Caput* thorace paullò latius, lateribus pone oculos, rotundatis; vertice convexo, tuberculo parvo conico inter antennarum basin; facie verticali. *Oculi* magni, rotundati, valdè prominuli. *Antennæ* graciles, inter partem inferiorem oculorum insertæ, articulis duobus basalibus crassioribus (articulis terminalibus in specimine viso mutilatis.). *Labrum* in medio articulatam, parte anticâ transversâ margine antico in medio paullò producto, ciliato. *Mandibulæ* validæ, breves, apice denticulatæ. *Maxillæ* elongatæ, lobo interno gracili curvato, apice tridentato, lobo externo galeato, biarticulato, articulo basali brevi; *palpi maxillares* maxillâ paullò longiores, filiformes, 5-articulati, articulis 4 basalibus subæqualibus, extimo paullò longiori et crassiori, apice truncato. *Mentum* oblongum, planum. *Labium* quadri-lobatum, lobis duobus internis brevibus acuminatis, binis externis majoribus ad apicem conniventibus. *Palpi labiales* filiformes, breves, 3-articulati, articulo 1mo brevissimo, 2do paullò longiori extimo oblongo-ovato, apice truncato.

*Prothorax* elongatus, subcylindricus, bistrangulatus, nodum medium rotundatum efformans, nodoque postico majori lateribus rectè deflexis et oblique truncatis. *Meso-* et *metathorax* brevissimi. *Segmenta thoracica* subitè inermia (*sternis* muticis.).

*Tegmina* et *alæ* coriacea, abbreviata, rudimentalia, ovato-triangularia nervis longitudinalibus. *Pedes* elongati, gracillimi, *tibiis anticis* basin versus

ocello subfenestrato instructis, femoribus omnibus subtùs paullò denticulatis, posticis duobus basi incrassatis; *tibiis posticis* serie duplici denticulorum parvorum; *tarsis* 4-articulatis, articulo 3tio bilobato.

*Abdomen* maris prothorace brevius, subcylindricum, apicem versus attenuatum, articulo penultimo appendiculis duobus abbreviatis obtusis et setosis instructo.

Fœmina haud detecta.

*Obs.* Hoc genus affinitatem intimam exhibet cum *Ephippigerâ* thoracis structurâ, tegminibus alisque abbreviatis.

Spec. 1. CONDYLODERA TRICONDYLOIDES. 5 1857

Cœrulea; prothorace subpurpureo capiteque punctatis, abdomine nitido lævi, antennis albidis fusco-annulatis, articulis duobus basalibus nigris, palpis fulvis, articulo extimo fusco, femoribus fulvo-rufis, posticorum basi maculâ cyaneâ, tibiis fuscis albido-lineatis, spinulis albidis, tarsis fuscis, articulis duobus basalibus suprâ albidis, stylis analibus fulvis.

Long. corp. lin. 9.

*Habitat* in Javâ.

In Mus. nostr.

I have applied the specific name of *Tricondyloides* to designate this insect, which not only in its general form and nodose thorax, but also in its peculiar colours (by which alone it is distinguished from nearly every other Orthopteron insect), so singularly represents the Cicindelideous genus *Tricondyla*. Another curious circumstance attendant upon this analogy is, that the locality of both these groups is the same, namely, Java.

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EXPLANATION OF TAB. XXVIII.

Fig. 1. *Pseudomorpha excrucians*, K., and details.

1 a. Underside of the head. \* An elevated line indicating the ordinary place of articulation of the mentum.

1 b. Maxilla.

1 c. Extremity of anterior tibia.



Fig. 2. *Adelotopus Ipsoides*, Westw. 2 *a*. Upper side of the head. *i*. and *i*. representing the genæ visible from beneath. 2 *b*. Underside of the head. *a*. The situation of the articulation of the mentum. *e*. Mentum. *d*. Jugulum. *f*. Maxillary palpus, the base of the maxilla concealed by the side of the mentum. *i*. The immensely developed genæ. *c*. The canal for the antennæ, *g*.

Fig. 3. *Sphallomorpha decipiens*, Westw., and details.

3 *a*. Front of head above, with the mandibles and labrum.

3 *b*. Underside of the head. *a*. A very indistinct line, terminating on each side in a slight notch and bristle, and indicating the ordinary place of the articulation of the mentum. *b*. A deep canal for the action of the base of the maxilla *f*., and separated from the outer canal *c*. (formed for the reception of the antennæ *g*.) by an elevated ridge *i*. *d*. Jugulum. *e*. Mentum.

3 *c*. Maxilla. 3 *d*. Labial palpus. 3 *e*. Underside of anterior tarsus.

Fig. 4. *Silphomorpha fallax*, Westw., and details.

4 *a*. Front of head, above, with the mandibles and labrum.

4 *b*. Underside of the head, exhibiting no traces of the ordinary articulation of the mentum, which here forms a component part of the skull.

4 *c*. Maxilla.

4 *d*. Underside of the thoracic segments, showing the acuminate prosternum (\*) and the small size of the metasternum (\*\*).

Fig. 5. *Rhyzopertha pusilla*, Steph., and details.

5 *a*. Labrum. 5 *b*. Mandible. 5 *c*. Maxilla. 5 *d*. Instrumenta labialia. 5 *e*. Antenna. 5 *f*. Fore tibia and tarsus.

Fig. 6. *Tomicus fuscus*, Marsh., and details.

6 *a*. Mandible. 6 *b*. Maxilla. 6 *c*. Mentum and labial palpi. 6 *d*. Antenna. 6 *e*. Fore tibia and tarsus.

Fig. 7. *Condylodera Tricondyloides*, Westw., and details.

7 *a*. Front of head. 7 *b*. Mandible. 7 *c*. Maxilla. 7 *d*. Instrumenta labialia.